AVICULTURAL MAGAZINE

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CEYLON SPURFOWL

AVICULTURAL MAGAZINE

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THE CEYLON SPURFOWL

GALLOPERDIX BICALCARATA (Forster)

By G. M. HENRY (Constantine, Falmouth, Cornwall, England)

The Spurfowls comprise only three species, of which two inhabit the Indian Peninsula and one is confined to Ceylon. They are all roughly of partridge size, show marked differences between the sexes, and are remarkable for the armature of the tarsi, in both males and females, with sharp spurs. The development of these spurs is subject to considerable variation ; usually, males have two on each tarsus, females one ; but some males have up to three or four on one tarsus and fewer on the other, while females may have two on each tarsus or only one in all.

Most accounts of these birds seem rather to stress their partridge-like appearance, especially in regard to the carriage of the tail. However, from much observation of the Ceylonese species in captivity, I feel convinced that their real affinities are rather Phasianine than Perdicine. The tail is often rather strongly laterally compressed, though not so markedly tectiform as in *Gallus* ; while their whole bearing and behaviour in life strongly suggest a small fowl rather than a partridge. Unfortunately, I have not been able to observe the order of moulting of the tail feathers—upon which, according to Beebe, their relegation to one subfamily or the other must depend.

They are all shy, skulking, forest birds, ground dwellers but roosting in trees. The Ceylon Spurfowl is the most secretive of birds, and though relatively common within its chosen haunts, it is with the possible exception of some of the rails, the most difficult to observe in Nature of any of the Island's birds ; such contacts as are made with it being generally confined to a brief glimpse as it dashes into cover when suddenly come upon on some jungle path. It is found in many parts of the southern half of the Island, but its main habitat is in the damp, lush forests of the wet zone, i.e. the sector lying to the south and west

of the central mountain massif, which receives the heavy rainfall associated with the south-west monsoon. These dripping, leech-infested rain-forests, with their heavy undergrowth of dwarf bamboo, etc., afford the bird optimum conditions, but it also ascends the mountains to 5,000 feet or more.

Although it is so seldom seen, its distribution is easily ascertained by the highly characteristic song of the male, which is freely indulged in several times a day, but especially in the fore-noon, during the breeding season. It may be described as a musical, whistling cackle, consisting of three-syllabled notes, each pitched a step higher in scale until the last, which suddenly drops to the starting point : *yŭhŭhŭ yŭhŭhŭ yŭhŭhŭ yŭhŭhŭ yŭhŭhŭ yŭhŭhēēyo* ; the final *yŭhŭhēēyo* may be repeated several times in an excited manner. This song is very ventriloquial in character and when one bird starts singing others will join in, answering each other from different directions, so that for a few minutes and several times in a morning, the welkin rings with music.

Although it can fly quite well, with a rapid, fluttering action, it is very reluctant to trust to its wings for safety and only does so when cornered, or put up by a carnivore ; then it will sometimes fly into a tree, but ordinarily, with dense undergrowth always at hand, it will run into it and rapidly vanish. Normally, flight is employed only for ascending to its roosting perch at nightfall. The ordinary gait is a high-stepping strut.

The Spurfowl feeds upon a mixed diet of seeds, wild berries, and a high proportion of animal food—insects, worms, and the like—such as abounds in the mulch of dead leaves among which it scratches energetically. Termites provide a great source of nourishment, especially for the chicks.

Being such a very timid bird, the Spurfowl was long regarded as impossible to keep for any length of time in captivity ; and such individuals as were trapped by Sinhalese villagers and sold to local aviculturists invariably scalped themselves on the roof of their aviary in very quick time ; and even if they managed to exist for a few months with naked and bleeding skulls, they were hardly desirable pets. In fact, however, this little game-bird is both easy to keep and to breed in a suitable aviary and it makes a most interesting exhibit. The cock, with his beautifully black-and-white spangled fore-parts and rich chestnut hind-quarters is most attractive, while his brown mate is a neat and comely little person. The great secrets of success with them are—abundant natural cover, a deep litter of dead leaves and the like, and no entering of their aviary by humans for any reason whatever.

Until these simple principles were put into practice at the small zoo that we maintained at the Colombo Museum, Spurfowl were a failure, but thereafter several pairs were kept in perfect health and condition for many years ; they bred freely, sang their songs, and throve

exceedingly. With the back two-thirds of their aviaries planted with a veritable jungle of " guinea grass " (a tall, tussocky, broad-bladed grass), lantana, and other shrubs and creepers, in which they could hide to their hearts' content, they quickly settled down and before long lost their shyness in the presence of humans, and gave perfect opportunities for watching their behaviour in every detail. Until this desirable state of emotional equilibrium has become established, it would, of course, be necessary to prevent newly caught birds from scalping themselves against wire-netting, either by clipping a wing or by providing a ceiling of soft fabric a foot (say) below the roof wire. Another very desirable feature in an aviary for any game-birds is a broad skirting-board all round the base of the wire-netting, of sufficient height to prevent the birds from seeing over when they are on the ground ; this discourages the habit of parading perpetually up and down beside the wire, trying to get out—a habit ruinous to health and beauty. A game-bird's aviary ought to be its satisfying little domain.

From observation of captive birds, I feel convinced that the Spurfowl is monogamous, pairing for life. A pair are utterly intolerant of any other of their own kind in the same aviary, and they will kill even their own offspring as soon as these begin to develop adult plumage. A pair were kept in a big aviary with a family of Junglefowl, but the Spur-cock so tyrannized over the Jungle-hens that he and his mate had to be removed to other quarters. (He never tried conclusions with the Jungle-cock—probably because the latter's gorgeous colouring obviated any feelings of rivalry with his own kind which he might have felt with the hens.)

The Spur-cock is very prettily attentive to his little hen, he will take her small tit-bits, proffering them with quaint wheedlings *wh wh whee we we*, etc., which she answers with whimpers suggestive of a very young puppy. On meeting, the pair will slightly expand their tails laterally, but I never witnessed any definite courtship display.

The nest is a mere scrape on the ground in the shelter of a big boulder, fallen trunk, etc., in dense undergrowth. Two to five eggs are laid ; they are perfect miniatures of those of the domestic hen and measure about 43 × 31 mm. The chick is a beautiful little creature clothed in rather uniform, dark-brown down. It develops very rapidly.

Though exceedingly difficult to shoot, the Spurfowl is easily trapped, as it has strong territorial instincts and a pair will frequent a small area for a considerable time. As its beloved jungles become ever more and more restricted in area it is bound to become extinct in much of its range ; already its habitat is greatly reduced since Legge's time (roughly, the 70s of last century), and although the species does not appear to be in immediate danger, it is impossible not to feel pessimistic regarding its future status.

MORTALITY FIGURES FOR CALIFORNIA COLLECTION OF PSITTACINES

By DAVID WEST (Montebello, California, U.S.A.)

In January of 1959, it was decided to keep an accurate account of the deaths which might transpire during the balance of the year. This could be done quite easily as on 1st January, 1959, there were an even 100 larger psittacine birds in my collection ; thus giving a base figure of 100 to use for calculating percentages. The birds ranged in size from Madagascar Lovebirds to Dwarf Macaws, and almost without exception were birds that had been in the collection for some months prior to January, 1959. Mention should be made that all the birds were housed outside and under very adequate conditions regarding size of aviary, number of inhabitants in each aviary, and care and feeding of same.

From previous experience it was known that the two periods of greatest potential danger would be the early spring months and the late fall months. Contrary to what might be expected, periods of intense cold rarely cause any deaths, while spring months with widely fluctuating temperatures are always the most dangerous for birds. Of the twelve months under review, there were deaths in four months, viz. March (5), October (1), November (2), and December (1). Examined more closely here are the results and also some guesses as to the probable causes of death.

March had five deaths, marking it as the most dangerous month of the year. A female Bourke was killed by a female Barraband when the Bourke apparently entered the Barraband's prospective nest. Later the Barraband became paralysed and died of paralysis. A female Alexandrine died egg-bound *on* the nest. It is very rare indeed for a female to stay on the nest while in this condition ; invariably they leave the nest and are easily detected. A yellow Red-rumped female, never a particularly promising-looking breeding specimen, also died—apparently enteritis. Lastly, a very valuable and exceedingly rare bird to die from pneumonia was a female Red-bellied Dwarf Macaw. This bird looked fluffed about noon and by evening had died. She was a bird of great charm—and it is quite doubtful if there is another of her species in the entire U.S.A.

From April to October there were no deaths. During October a female Bourke died—" gone light." In November a hybrid male Brown's and Yellow Rosella died from a broken neck. Also during November a female Layard's Parrakeet died from a kidney infection. In December a rather aged and imperfectly feathered female lutino Ring-necked died quite suddenly—cause unknown.

Thus during the course of one year nine birds (eight females and

one male) died. This gives a mortality figure of 9 per cent (9/100). The interpretation of the figure can only have some meaning and importance if it could be compared with figures from other collections of birds of like type, size, and locale. If the figure were changed (that is, the base figure of 100 raised to 145 which was the number of birds in the collection on 31st December, 1959), the adjusted mortality percentage would be 9/145 or approximately $6\frac{1}{5}$ per cent.

The writer is familiar with only one other published article on mortality figures. The Marquess of Tavistock's " Facts and Figures " in the March, 1938, number of the MAGAZINE. The author mentions that in his collection of 266 birds, there were twenty-seven deaths ; which would give a mortality figure of approximately 10 per cent.

In summation it would be the writer's opinion that the average mortality figure one might expect in a psittacine collection in California would range from a low of 5 per cent to a high of 10 per cent. Of course as more than one wag has pointed out, there are two kinds of liars, i.e. damn liars and statisticians. We can certainly twist figures about—especially if working with a small base figure.

A good example of how mortality figures would look when judged from a very small base figure would be an instance where a friend of the writer's had six Rosellas at the start of the year and ended up with only five. This single death represented a $16\frac{2}{3}$ per cent mortality figure—higher by far than mine.

It would be very interesting to hear from other members regarding their experience with life and death in the aviary, although admittedly we enjoy reading about breeding successes more than the reverse.

1960

From 1st January, 1960, to 1st April, two birds died from a total of 110. A female Turquoisine died in January and a female Indian Ring-necked died in March—the latter possibly damaged internally during copulation with an Alexandrine. $2/110 = 1{\cdot}8$ per cent mortality figure.

* * *

THE BIRD COLLECTION IN THE PEKING ZOO

By WOLFGANG GRUMMT (Curator of Birds, Berlin Zoo, Berlin-Friedrichsfelde, Germany)

In April and May, 1959, I had the opportunity, during a stay in Peking, to make a thorough inspection of the Peking Zoo. This old zoo has now been greatly extended and covers an area of 70 ha.

Although there is no large bird-house, such as are found in our European Zoos, nevertheless the Peking Zoo has a considerable bird collection with many valuable specimens which are only rarely seen in our Zoos. Several large ponds are occupied by water birds of many species, but I will only mention a few of the more striking. Mandarin Ducks flew about in a half-wild state and Falcated Teal and one or two Baer's Pochards were interesting inhabitants of a small pond. Whooper, Mute, and Black Swans were swimming about on all the ponds, as well as large numbers of Red-breasted Geese, Swan Geese, Bar-headed Geese, and Bean Geese ; among the last named were a good number of the thick-billed Bean Goose (*Anser fabalis serrirostris*), from east Siberia, which has a strikingly heavy bill. On an island were Great White Herons (*Egretta alba modesta*), Javan Adjutant (*Leptoptilos javanicus*), and some Chinese White Storks (*Ciconia ciconia boyciana*), which are considerably larger than the common White Stork and have a heavy black beak. In addition to Crowned Cranes (*Balearica pavonina*) and Lilford Cranes (*Grus grus lilfordi*), there were also two beautiful White-necked Cranes (*Grus vipio*) and about ten hand-tame Manchurian Cranes (*Grus japonensis*). In the outside part of the Zoo where the quarantine station is situated, there were also many ornithological gems. I saw fifteen more Manchurian Cranes, which had all been caught as half-grown chicks and reared in captivity.

Particularly noteworthy is a large communal aviary for pheasants with, as secondary occupants, a large number of passerine birds. The aviary occupies a ground space of about 17 m. × 13 m. with a height of 15 m. Whereas in our zoos and pheasantries most pheasants have already been bred for many generations in captivity and it is often not known for certain whether they are of pure blood (perhaps Lady Amherst's, Blue Eared and Brown Eared Pheasants are exceptions), the Peking Zoo has only wild-caught birds and also the exact place of capture is known. All the pheasants are caught by the Zoo's bird-catchers.

Among the interesting inhabitants of this aviary was one cock Chinese Monal (*Lophophorus lhuysi*), which had been there for over a year and was in excellent condition. This must be the only example of this species in captivity. The outstanding characteristic of this highly-coloured pheasant, which is found in the mountains of Szetschuan,

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White-necked Crane (*Grus vipio*), in Peking Zoo

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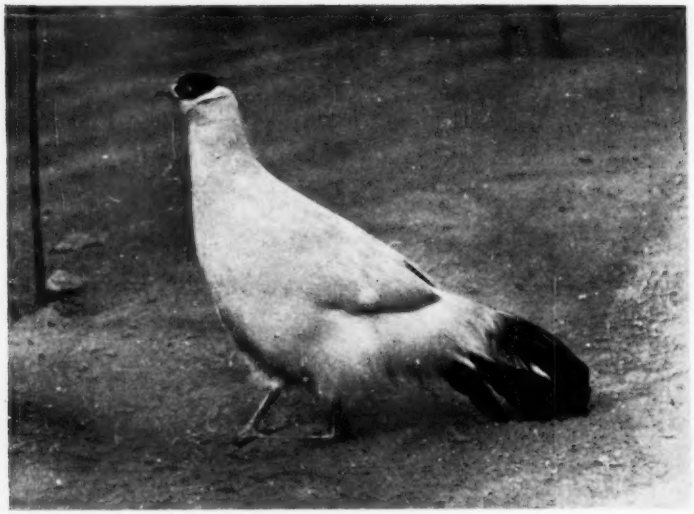

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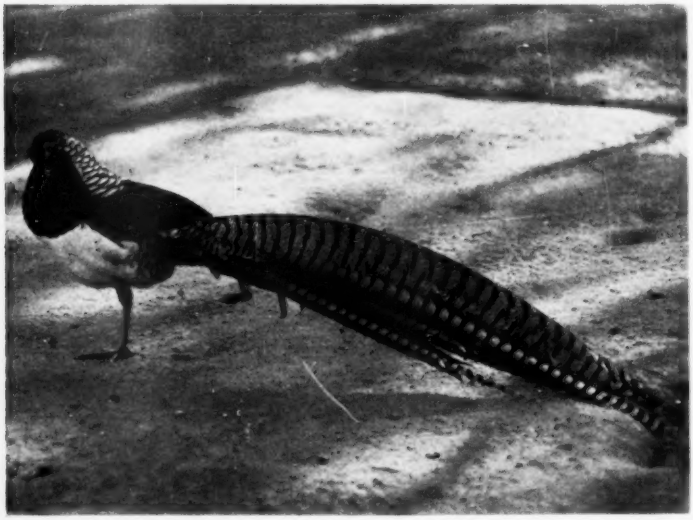
Wild-caught Tibetan White Eared Pheasant (*Crossoptilon c. drouynii*), in Peking Zoo



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Wild-caught Lady Amherst's Pheasant (*Chryselophus amherstiae*), in Peking Zoo

To face p. 131]

is the metallic shining green tail. The other feathers are very similar to those of the Himalayan Monal (*Lophophorus impeyanus*). But from what the keeper told me this bird is difficult to acclimatize, particularly with regard to feeding. The Chinese Monal only appeared in the early morning and again in the late afternoon. During the hot midday hours it sat completely hidden in the thick clumps of branches about 8–9 metres high. Also in this aviary were three Tibetan White Eared Pheasants (*Crossoptilon crossoptilon drouyni*), with pure white feathers, black head, and dark tail ; one ♂ and 3 ♀ Golden Pheasants ; one ♂ and 3 ♀ Lady Amherst's Pheasants ; one ♂ and 2 ♀ Reeves' Pheasants, the cock with a particularly long tail ; one ♂ and one ♀ Temminck's Tragopans (*Tragopan temminckii*) ; six Chinese Ring-necked Pheasants (*Phasianus colchicus torquatus*). The Lady Amherst's cock, which was also wild-caught, clearly shows that we have practically no pure bred specimen of this species in our aviaries. Contrary to most captive birds, it has no red feathers on the underside. The tail is strikingly long and, moreover, the individual feathers are very broad.

About fifteen Bamboo Partridges (*Bambusicola thoracica*), which were constantly calling, were also in the large aviary. In addition, there was also a splendid male Great Bustard (*Otis tarda dybowski*), and five Pallas's Sandgrouse (*Syrrhaptes paradoxus*) which sat immovable in the same place on the sand almost the whole day. They were only lively in the morning when they ran about and ate.

At least eighty Red-billed Leiothrix (*Leicthrix lutea*), mostly males, perched in all the bushes and sang continuously. Some Mongolian Skylarks (*Melanocorypha mongolica*) and some Pine Buntings (*Emberiza leucocephala*) were also present.

It is astonishing that the large numbers of birds in this aviary get on with each other. During the breeding season, however, a few pairs are taken from the main aviary and put in breeding aviaries to which the zoo visitors do not have access.

In one aviary of about 60 m.² there were six wild-caught Blue Eared Pheasants. Blue, Black-winged, and White Peafowl were housed in aviaries and twenty Green Peafowl walked about at liberty.

The collection of parrots which was displayed in a series of aviaries was very extensive. I will only mention the most interesting species :—Hyacinthine Macaw, Red and Yellow Macaw, Red and Blue Macaw, Illiger's Macaw, Green Macaw, Rose-crested Cockatoo, Yellow-crested Cockatoo, Leadbeater's Cockatoo, White-crested Cockatoo, Lorikeets (*Trichoglossus haematodus*). The Rosy-headed Parrakeets (*Psittacula cyanocephala rosa*) from south China, which here represent the Blossom-headed Parrakeet, were particularly interesting. In this form the head of the male is rose with a bluish tinge. There was also the Derbyan Parrakeet (*Psittacula derbyana*) which, with us is very rarely to be found in captivity nowadays. In colour it resembles the

Moustache Parrakeet (*Psittacula alexandri fasciata*), but is considerably larger.

Finally in a large flight there were two Steller's Sea Eagles (*Haliaeetus pelagicus*).

* * *

DIRECT IMPORT OF BIRDS FROM AUSTRALIA TO NORWAY

By Gust. A. Gjessing (Drammen, Norway)

For several years, I had asked our Veterinarian Authorities to permit me to import some birds from Australia, but I never received a permit, until 1956, when I became personally acquainted with an official high up in the Department of Agriculture, under which the Veterinarian Authorities work. I explained my wishes to him, he visited my establishment and took the matter up with the right party, with the result that I was given a permit to import one shipment during the year 1957.

Then I had to find a suitable contact in Australia, and that was not easy. I wrote to many members of the Avicultural Society, but got no answer that was of much help. Then, Mr. Baty of Newcastle, one of our fellow members, whom I met personally when my wife and I visited England, told me about a visit he had had from Dr. Alan Lendon, from Adelaide, and I wrote him. Dr. Lendon was kind enough to give me an address in Adelaide, a regular exporting firm named *Avitraders Ltd.*, so I wrote them and they sent me a price list. One of my friends here in Norway (the only person besides myself who keeps the larger Australian species), and I sent an order for some forty pairs of birds—a selection of the rarer and more desirable species. We were informed that the money must be paid in advance, which we did. A ship was found, whose captain was willing to carry the cargo, and I paid some extra money to have good sized cages used for transport. I also instructed the Australian shipper to promise the person who was to tend the birds at sea a special bonus if the birds arrived here in fair shape.

I might mention here that it was forbidden to send birds by air from Adelaide to Europe ; they had to come by sea. We were very anxious, of course, that the birds should be at most eight weeks at sea before arrival. The ship was a Norwegian vessel belonging to the Wilhelmsen Line in Oslo and the stewardess tended the birds under

instructions from the shippers. After five weeks at sea, the ship reached Genoa (Italy), the sailing schedule was changed, and I was notified the ship would not go any further than Antwerp, and would not come to Oslo at all.

We got very worried, what now . . . ? But after another two weeks, we got another wire, telling us that the birds would be unloaded in Antwerp, and sent on by another boat to Norway.

And so, on the 26th July, 1957, the very first shipment of birds from Australia came to Norway.

Some birds died on the way—some seventy birds were sent, and the total loss was five birds, which was much better than expected. But our very greatest disappointment was in the birds themselves, I mean the species which were sent. We had ordered our own choice, but we received birds we had not ordered. Port Lincolns, Rock Peplars, Barnard's, Golden-mantled Rosellas were present in abundance. No Princesses, no Splendids, no Turquoisines, etc., but I got a pair of Brown's, which I appreciated, although not ordered either.

Let me say to the honour of *Avitraders Ltd.*, the birds were all young fine healthy stock, and although we found the way of doing business somewhat different from our own practice, we had to say to ourselves : " Well—you did not get what you wanted, but—*you got fresh birds.* That was worth something."

We put the birds into quarantine-aviaries, and watched them. They were perfectly good, all of them. Especially my pair of Brown's and one pair of Barraband's—a very large pair, possibly half as big again as the ones one usually sees. This pair, incidentally, gave me four fine young in the 1958 season.

We were at first really angry with our Australian shippers for having taken it upon themselves to select what we were to have—but after a while we realized that this might have been done in order to send the strongest and best birds on such a long journey.

We selected those which we wished to keep, and the rest were then sold to Denmark, Switzerland, and Ireland.

The birds all thrived and those we kept are still in good health. They were packed in tea-chests with a cage front, one pair to each tea-chest. Upon arrival they were clean and the water was fresh—the stewardess on the ship had done a good job, and was rewarded with a cheque for £5 from each of us. I asked for another permit for 1958, and got it.

We—Mr. Foss and I—again ordered a shipment of the rarer species, this time a total of twenty pairs. This time all the birds ordered were available and sent. But on this occasion we were not so lucky, as about 40 per cent of the birds were dead upon arrival or died shortly after. Of two pairs of Splendids, only the females survived, in three pairs of Kings, one died, five birds were delivered. Of four pairs

of Pennant's, 2½ pairs arrived alive, the rest were dead, and so on. But the birds that stood the trip were also very fine specimens.

They were packed in the same manner as the previous shipment, but this time it was two sailors who tended them. They were sent from Australia in February and arrived in London just at Easter, and the boys aboard the ship hauled all the crates out to let the " poor birds get some sunshine'". They were not aware of the fact that such birds don't stand much direct sunshine, and let the birds stand in the direct sun for three days, as the ship stayed in the port of London that long. Imagine—inside a tea-chest in the direct sun, no wonder we lost 40 per cent of them, I am surprised that any of them lived to arrive in Norway. But they did, and those that arrived and managed to live over the first week, are still alive to-day, looking very fine and healthy.

All the birds were young birds of the year. In this way I was able to replace practically all my birds, I sold the old pairs and installed new ones. To summarize I will say, that if one is lucky enough to be able to give direct, or indirect by letter, instructions on the care of the birds while they are being transported, and one can be sure that the travelling cage is at least one tea-chest per pair—one stands a good chance of getting most birds safely, even after six to eight weeks' sea-travel.

After my experiences, I must say, that I find the reports I have had so far from importers in England, too pessimistic. That we had as much as 40 per cent loss on the second import was surely only because the birds had been left in the sun. They had had sunstroke, of course.

But—I guess these will be my first and last attempts. I do not think the new situation is likely to be changed, while I am able to import birds.

It is now up to all of us to try to keep our stock alive, to help out with exchanging stock between us, and to give all the advice possible to those seeking help and advice, so that everybody can have a fair chance at breeding.

* * *

Copyright] *[San Diego Zoo*

BREEDING PAIR OF MAGPIE-LARKS WITH NESTLING
Male, left—black throat ; Female, right—white throat

Copyright] *[San Diego Zoo*

BABY MAGPIE-LARK (*Grallina cyanoleuca*)
Age 21 days, 27th May, 1960.

To face p. 135]

THE BREEDING OF THE MAGPIE-LARK
(*GRALLINA CYANOLEUCA*)

By KENTON C. LINT (Curator of Birds, Zoological Society of San Diego, California)

On the morning of 27th May, 1960, two Magpie-Larks were hatched in our aviary at the San Diego Zoo. I believe this is the first time this bird has been successfully bred in the Western Hemisphere. The events leading up to the hatching started while I was on a collecting expedition to Australia in 1957.

The Magpie-Lark is one of Australia's most widely known birds. It prefers to live near water, whether creek, river, swamp, lake, or lagoon, but is happy enough in green, moist places. As an insectivorous bird, and because it eats pond snails, an intermediate host of the liver fluke, it is fully protected.

Like other familiar birds the Grallina has many popular names, such as " mud-lark," " Murray magpie," " peewit," " peewee," and " pugwall." It makes a " pudding-basin " nest of mud, the natural cement being reinforced with grass stems, feathers, and hair.

When I saw these attractive black and white birds walking around on the green lawns of Taronga Park in Sydney, I decided at once to import a pair into the United States.

With the necessary importation permit and the co-operation of Sir Edward Hallstrom, President of the Taronga Zoological Park, I included a pair of these birds in my shipment arriving aboard the S.S. *Sierra* on the 9th February, 1958. Both birds were young and they were placed on exhibit in an aviary shared with a pair of Tawny-shouldered Frogmouths, *Podargus strigoides*, also imported on this shipment.

In 1959 a little " domestic tension " arose between this pair of birds and it became necessary to separate the two to prevent further fighting. The hen Mud-lark was nursed back to good health with abundant insectile food and good care.

This year I decided to try to breed this pair of birds. They were removed to an inside aviary where they could be closely watched, and an artificial nest was installed for their nesting cycle. Nest building material of mud and grass was placed in the aviary.

On the 11th April, I observed the male bird carrying dried grass around the aviary. This was encouraging and raised hopes for a successful breeding season. On the 15th April, the hen was observed sitting on the nest on two eggs. On the 28th April, I passed the aviary and heard faint squeaking, similar to the sound of baby mice, coming from the nest. The next morning both babies were found on the

ground, thrown from the nest during the night. This was discouraging, but perseverance in breeding birds is essential so there was nothing to do but start all over again. With abundant insectile food this pair of Mud-larks again started breeding. On the 13th May, two eggs were again observed in the nest with the hen sitting.

Mud-larks are very shy sitters and whenever the cock saw someone approaching the aviary he uttered his very shrill whistle and out came the hen at once. As far as I could see the hen did most of the incubating, the cock guarding the nest when she left to gather food. The eggs are very pretty, sand coloured with a pink tinge, and dark spots and blotches at the large end.

On the 27th May, in the morning, I again heard the familiar sounds of newly hatched nestlings, probably hatched during the night. An incubation period of thirteen days was recorded for this species. Two babies had hatched.

Because the nestlings of Mud-larks are fed only insectile food, great quantities of insects must be supplied daily. Three bird keepers were instructed to feed insects on a daily schedule of 8 a.m., 10 a.m., 12 noon, 2 p.m., and 4 p.m. to the parent birds. Early morning and evening feedings were supplied to the nestlings by the author in order to ensure their proper growth.

The young birds were reared entirely on live food—mealworms, *Tenebrio molitor*, earthworms, larvae of the Larder Beetle, *Dermestes lardarius*, cockroaches, and baby snails. The parent birds also fed flies and insects they caught in the aviary.

Needless to say, we are delighted to have succeeded in rearing this delightful bird in our aviary.

In a search of the literature we find only one breeder outside of Australia to record a success of this species—by the late Alfred Ezra, thirty-two years ago.

EZRA, ALFRED, 1928. The Breeding of the Pied Grallina. *Aviicult. Mag.* 4. 6, 233–234.

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SUNBIRDS IN THE BOEHM COLLECTION, NEW JERSEY

By C. EVERITT (Titusville, New Jersey, U.S.A.)

It had been my original intention that, as a follow up to the details of the lay-out of the Edward Marshall Boehm aviaries, I would describe the inmates room by room and aviary by aviary in the order of the plan as shown on page 113 of the May–June issue of this *Magazine*. However, as further bird rooms and flights have been added since that was produced and even more are planned, I have decided to deal with the collection species by species. Even this will undoubtedly be out of date by the time it gets into print for new arrivals are coming in regularly. I fully realize that many of the specimens will be familiar to many readers but, nevertheless, my notes may serve as a useful reference by virtue of the fact that the birds will be grouped by species irrespective of their normal habitat.

This first paper will deal exclusively with those species of the Nectariniidae, the family of sunbirds that are kept here at the present time. This last point is important for, although it includes members of the genera *Anthreptes*, *Chalcomitra*, *Cinnyris*, *Cyanomitra*, *Drepanorhynchus*, and *Nectarinia*, it covers but a minute fraction of the complete family of sunbirds which are confined to the Old World with the humming bird as their counterpart in the New World. There are some points of similarity between the two families but, whereas sunbirds sometimes feed on the wing but normally alight on the blooms that attract them, humming birds as a general rule adopt the reverse procedure. In nearly all cases pairs of all the species dealt with hereunder are kept in the covered aviary shown as No. 32 on the plan mentioned above together with a number of sugarbirds, honeyeaters, flycatchers, and a few seedeaters which will be dealt with at a later date. Incidentally, this covered aviary has been landscaped in the pattern of a formal Indian garden.

Genus *ANTHREPTES*

Ruby-cheeked (*A. singalensis*).

Although this Malayan species is sometimes classified in the genus *Chalcomitra*, its short, straight bill is a distinct characteristic of the genus *Anthreptes*. It is a small bird, only 4 inches in length, and is seldom found above 3,000 feet and descends to the lowlands as the cooler weather sets in. The sexes differ, the adult male being a dark metallic green above. This colouring is only distinguishable in the sunlight and otherwise it appears to be black, the colour of the flight and central tail feathers actually are. The cheek patches and ear-coverts are a metallic coppery-red with the chin, throat, and breast a rufous buff. The remainder of the underparts are olive-yellow, with

legs and feet of greenish-grey. The female is olive-green above and lacks the coloured cheeks and ear-coverts. The chin, throat and breast are a pastel rusty-buff and the rest of the underparts a greenish-yellow. Like other members of *Anthreptes* it is very insectivorous and readily takes to small mealworms.

Violet-backed (*A. longuemarei orientalis*).

So far as I can ascertain, there are six different sub-species of this African sunbird, but the one at the Boehm aviaries is from Kenya. They are not often kept in captivity for they are rather difficult to " meat off " owing to their need for suitable live food. Nectar by itself does not appear to be sufficient. In appearance they have the body shape and straight bill usually associated with sugarbirds rather than that of the normal sunbird. There is no non-breeding dress and the adult male is metallic-violet above which colouring extends right down to the tail. The flights and face are black, wing-butts of metallic violet and the pectoral tufts are yellow. The throat is a similar shade of violet but the remainder of the underparts are white. The female is sooty-grey above with a violet suffusion and has a distinct white eye-stripe. The wing-butts vary, some being plain and others violet, but invariably the tail is metallic-violet resembling the male's. The chin and breast are white with yellowish flanks and belly. This is a medium sized bird, being about 5 inches in length.

Genus *CHALCOMITRA*

Amethyst or Black (*C. amethystina*).

A fairly large sunbird, about 6 inches in length, which is to be found in three African regions, but there are slight differences in the colouring and make-up with each sub-species. They all have square tails and there is no non-breeding dress. The adult male from Portuguese East Africa—*C. a. kirkii*—is mostly of a velvety purplish-black with forehead to crown of metallic-green with a golden sheen. The chin and throat are reddish-purple and the wings and tail are purplish-black tinged with bronze. The shoulder-butts are metallic-violet and occasionally a bird is found which shows yellow pectoral tufts, but normally these are absent. The female is ashy-green above with blackish flight-feathers which have a gloss of bronze. The tail is black with the same bronze tinge and all the feathers are white tipped. The underparts are an olive-yellow with dusky-brown streaks throughout. The Somaliland to Tanganyika sub-species—*C. a. kalckreuthi*—is identical in colouring, but the wings are shorter. This applies to both sexes. The Sudan sub-species—*C. a. doggetti*—whilst having wings of the same length as the first mentioned differs from both in so much that the adult male has a metallic bluish-green forehead to crown. The female is identical to the Portuguese East African sub-species.

Scarlet-chested (*C. senegalensis*).

Another fairly large African sunbird 5 to 6 inches in length ; there are four sub-species ranging from South Africa up to Abyssinia and across to the Northern Cameroons. The sub-species we are interested in here is *C. s. gutturalis* which is to be found from Kenya Colony right down to the Cape. The other two sub-species are to be found north of the Equator in Abyssinia and Somaliland and in Equatorial Africa in the Belgian Congo and Uganda. There is no non-breeding dress and the adult male of the first named sub-species has a metallic-green forehead and crown, metallic-violet shoulders with the remainder of the upper parts velvety-black. The flight and tail feathers are brownish-black with a blush of old gold. The chin and upper neck are the same colour as the crown with the lower chin and chest a crimson-red with blue markings just below the tip of each feather. When the feathers of the chest are puffed these blue markings show up as blue flecks on an otherwise scarlet chest. The female is dusky-olive above, with the flight and tail feathers having a bronzy tinge and with white edges to the primaries. The lower parts are olivaceous-yellow streaked with dusky-brown, the throat being darker than the remainder. A pair of these birds nested this year, but unfortunately the one chick was thrown out of the nest at just 48 hours old. The female is now busily tidying up the nest and we have hopes of better luck next time. In the North Abyssinian sub-species—*C. s. cruentata*—the adult male is similar in appearance except that the chin and upper throat are black and the metallic shoulder colouring is confined to the wing-butts. Further, the female lacks the white edged primaries. The adult male from the equatorial regions—*C. s. lamperti*—is similar in appearance to the first named, but is larger and has a longer bill. The hen is of the same colouring as the N. Abyssinian sub-species.

Genus *CINNYRIS*

Coppery (*C. cupreus cupreus*).

One of the smaller African sunbirds, being only 4 to 5 inches in total length and the male having, as its name implies, an upper mantle of metallic golden-copper. This colour covers the head and neck completely round to the upper chest. The lower portion of the mantle, the rump, the upper tail-coverts, and the lower wing-coverts are a metallic-purple and the underparts are black. The flight and tail feathers are blue-black, the tail being markedly square with no elongations. In non-breeding dress the male resembles the female except that the black flight and tail feathers are retained as are the metallic wing and upper tail-coverts. The female is olive-green above and yellow below with a lighter patch at the throat. The tail is blue-black with light edges and tips to the outer feathers.

Eastern Double-collared (*C. mediocris*).

There are a number of sunbirds from Africa which are accorded the general title of Double-collared, but the one referred to here comes from Kenya and, although smaller than the South African species, lacks nothing in the matter of colouring. Broadly speaking, the adult male resembles the Beautiful Sunbird—dealt with later under the genus *Nectarinia*—except that it has a narrow metallic-blue band across the upper chest with a broader scarlet band below and the rest of the underparts an olivaceous-yellow. Further, there are no elongated feathers in the blue-black tail the outer feathers of which are edged and tipped with white. There is no non-breeding dress, but there is the tendency for the scarlet to lose its brilliance in captivity. The female has duller black wings than the male and the olive edges to the flight feathers are more distinct. The upper parts are an olive moss-green as are the flanks and throat. The remainder of the underparts are a yellowish-olive. The tail is blue-black with white edges and tips to the outer feathers in a pattern similar to those of the male.

Loten's (*C. lotenia lotenia*).

The Loten's Sunbird is to be found in Southern India and Ceylon and, although the largest sunbird from the latter area, is one of the smallest species we have, being only 4 inches in length. For its size it has a fairly long bill, which is curved downward more than is customary in the general range of sunbirds. There still appears to be some doubt as to whether the male has a non-breeding dress or not and this is obviously a matter that could do with further investigation. In the specimens kept here the males at the commencement of their moult certainly lost some of their brilliance, but refeathered in their full adult attire. The general colouring of the adult male is a metallic-blue head, neck, and upper parts, with a purple throat and breast. The remaining underparts are a sooty-brown, almost black, as are the wings. The upper tail-coverts are metallic-blue and the tail-feathers themselves a bluish-black. The female is olive-grey above and pale yellow below, with a black tail the feathers of which are tipped with pale yellow.

Marico (*C. mariquensis*).

This African species which is found over a wide range from South Africa up to Somaliland, is very similar in appearance to the Purple-banded, but is larger, the male being 5 to 6 inches in length. There is no non-breeding dress and the adult male's head, neck, mantle to rump, including the lesser wing-coverts, are a vivid metallic-green with a golden sheen. The wing feathers are blue-black as is the rounded tail. The underparts are smoky-black except for a metallic-violet band across the upper breast with a narrow maroon band above.

The female is ashy-coloured above with yellow underparts except for the throat which is smoky, the feathers having white tips which produce a flecked appearance. The tail is blue-black with the outer feathers white edged and, except for the central pair, white tipped.

Purple-banded (*C. bifasciatus tsavoensis*).

As stated above, there is considerable similiarity between the Marico and this species, except that it is a much smaller bird, about 4 inches long and the maroon band across the chest is narrower and more violet tinged. Like the preceding species there is no non-breeding dress. The distribution of this species is much more limited, being confined to an area from Southern Somaliland down to Zululand and from Eastern Tanganyika across to the Cameroons, but always inland and not in the coastal regions. The female is ashy-olive above with the underparts of pale-yellow streaked with sooty-black. The throat is smoky-black and the rounded tail is black with white-tipped feathers.

White-bellied (*C. talatala*).

This is one of the smallest sunbirds from the northern parts of South Africa, the adult male being only 4 inches in length. The head and upperparts of the adult male are a metallic greenish-blue with old gold reflections. The upper tail-coverts are more blue than green and the wings a dull black. The tail is blue-black with metallic-green edges to the outer feathers. The chin is sooty and the throat metallic-green. There is a violet band across the chest below which is a narrow black band. The rest of the underparts are white. The female is ashy-brown above with a bluish-black tail, the feathers of which are edged with metallic-green as are the upper tail-coverts. The underparts are a dingy white. The male in non-breeding dress resembles the female except that the blue-black tail, metallic wing, and upper tail-coverts are retained.

Yellow-bellied Variable (*C. venustus falkensteini*).

There are four sub-species of the Variable to be found in Africa, the above being from Kenya. The White-bellied Variable is from the Somaliland and Abyssinia ; the Northern Yellow-bellied from Sudan, and the Orange-bellied is to be found in the Belgian Congo and Tanganyika. They are very similar in appearance, the main difference being the colour of the underparts. The general colouring of the adult male of the Kenya sub-species is a metallic bluish-green over the top and back of the head and the upper parts. In the sunlight this is enhanced with a sheen of old gold. The forehead is violet and the blue shade of the upper parts deepens on the upper tail-coverts, the tail itself being blue-black with metallic-green edges to the outer feathers. All the tail feathers have lightish tips. Below the neck it is metallic-blue

with a steel-blue, washed with violet, throat. The remainder of the underparts are bright-yellow as are the pectoral tufts. The female is olive-grey above and pale-yellow below, with a blue-black tail. The male in non-breeding dress resembles the female, except that the metallic colouring of the wings and upper tail-coverts is retained.

Genus *CYANOMITRA*

Green-headed (*C. verticalis*).

Another Kenya species where the male bird has no non-breeding dress. The adult male has the head, neck, and sides of face a metallic-green with the rest of the upper-parts an olivaceous-green. From the chin to the chest it is metallic greenish-blue, with the remainder of the underparts grey. The pectoral tufts are orange. The female is very similar in appearance having the green head and neck, but they are not such a bright shade of green as in the male. From the chin to the chest it is dusky-grey merging into smoky-grey through the rest of the underparts. It is a medium-sized bird being about 5 inches in length.

Mouse-coloured (*C. veroxii*).

One of the larger sunbirds, being 9 inches in length and is often referred to as the Grey Sunbird. The sub-species kept here is *C. v. fischeri* which comes from Portuguese East Africa. There is no non-breeding dress with the adult male which is grey, with a greenish gloss above. The tail is dull-black with greenish edges to the inner webs and the pectoral tufts are red, streaked with yellow. The underparts are greyish-white. The female is similar in colouring, but lacks the pectoral tufts and is slightly smaller. This species is about the most sombre coloured of the entire family of sunbirds.

Olive (*C. olivacea*).

This South African sunbird closely resembles the preceding species, but is much smaller, being only 5 to 6 inches in length. Further, it is olive-green above, with dusky wings and tail and the underparts are a grey-green shade. Both sexes have yellow pectoral tufts and, there being no non-breeding dress with the male, the only difference between the sexes is that the female has a shorter tail.

Genus *DREPANORHYNCHUS*

Golden-winged (*D. reichenowi*).

This is one of the larger of the Kenya sunbirds, the adult male being 9 inches in length. A characteristic feature is the accentuated downward curve of the bill, that of the male being larger and more curved than the female's. The breeding dress of the adult male is a metallic old gold colouring with greenish reflections over the head right down to the upper tail-coverts. The wing-butts are the same colour, with

the remainder of the wings and the tail, black with bright golden outer webs. The central pair of tail-feathers are extremely elongated to the extent that they represent one-third of the total length of the bird. From chin to chest it is metallic coppery-red with the rest of the underparts black. In non-breeding dress the entire upper-parts and from the chin to chest are black, the wings retain their metallic butts and there is no change with the tail. The female is olive-green above and yellow mottled with olive below. The flight and tail feathers are edged with golden-yellow, but there are no elongated tail feathers.

Genus *NECTARINIA*

Beautiful (*N. pulchella melanogastra*).

The general colour of the adult male is metallic golden-green. This colouring extends to the belly in the Senegal sub-species, but, with the Kenya sub-species—which we have here—the belly is black. The flight-feathers are blue-black as are the tail feathers, the central pair of which are elongated and edged with metallic-green. There is a brilliant red patch in the centre of the chest which is edged with yellow in a golden-green surrounded. Unlike the Senegal sub-species, there is no non-breeding dress. It is in the medium size range of sunbirds, measuring 6 to 7 inches from tip of bill to the end of elongated tail feathers. The female is ashy-olive above, tinged with pale-yellow which colouring extends to the sides of the head. The chin and throat are yellowish-white, with the rest of the underparts yellow. The tail is blackish with narrow metallic-green tips except for the outer feathers which have white edges and tips.

Bronze (*N. kilimensis*).

Another species from Kenya, where the male bird has elongated tail feathers and there is no non-breeding dress. It is considerably larger than the preceding species, being about 9 inches in total length. The general colouring of the adult male is dull metallic-green with bronzy reflections which resemble old-gold in the sunlight. There is no green in the mantle, wing-coverts, rump, and chest which are purely of a dull metallic old-gold colouring. The rest of the underparts, wings, and tail are purplish-black with the greatly elongated central tail-feathers being edged with metallic-bronze. It has a fairly long downward-curved bill and is a most striking bird when seen in the sunlight. The female might at first sight be confused with the Malachite hen, the main points of difference being that the Bronze's bill curves more downward and the central tail feathers are slightly elongated. The upper parts and wings are olive-brown, the chin is whitish and the underparts are yellow streaked with brown. The tail has a purplish-tinge as against the bluish shade of the Malachite and the yellow eye-stripe is smaller and narrower. There is a sub-species from South

Africa—*N. k. arturi*—but here the bronzy old-gold suffusion of the male is replaced by a coppery shade of colouring. There is, however, no distinct difference in the females.

Malachite (*N. famosa*).

One of the largest of the sunbirds, the male being 10 inches in length and, with its metallic emerald-green shot with gold colouring, is, to my eye, one of the most attractive. It is to be found over quite a wide area in Africa, extending from just north of the Equator to as far down as the northern parts of South Africa. It has a slightly downward-curved bill of over an inch in length, and disports brilliant yellow pectoral tufts. The flight and tail feathers are black, the central pair of tail feathers being greatly elongated. From the chest to the under tail-coverts it is a deep metallic-blue but, in the sunlight, little differentiation in the general emerald colouring is noticeable. The non-breeding dress resembles the female somewhat, except the black flight-feathers and the elongated tail feathers are retained. In the majority of instances some of the metallic green body feathering also remains. The female is much smaller than the male, being only about 6 inches long, but the difference is mostly due to the lack of elongated tail feathers. The upper-parts are olivaceous-grey and the lower-parts yellowish-green, mottled with dark-green. There is a distinct yellow eye-stripe which marking, together with the downward curved bill and the size, is one of the best aids to identification.

Purple (*N. asiatica*).

Whereas the three species of the *Nectarinia* so far described are inhabitants of Africa, the Purple is to be found in India. It is a small bird, being about 4 inches in length. The adult male is black with a metallic-cobalt or purple sheen. The tufts of crimson and yellow beneath each wing are fully visible only when the bird is displaying, but can just be seen when it is in repose. In non-breeding dress the male is brownish above with dark-yellow underparts, the general colouring of the female, but it retains the dark wings and a broad metallic-violet stripe from chin to abdomen. These birds are not good travellers, this fact applying in particular to the females, but, once acclimatized, they appear to be quite hardy although a little quarrelsome.

Purple-rumped (*N. zeylanica*).

This is another of the smaller sunbirds of which there are two sub-species—both small—the larger of the two being the Indian sub-species and the other coming from Ceylon. The adult male has no eclipse plumage, the most conspicuous parts of his colouring being the bright yellow underparts and the purple rump. The crown is a metallic dark blue and the chin and throat are a deep vinous shade

with a metallic gloss. The upper parts and wings are a rich, deep brown the tail feathers being even a deeper shade. The female is inclined to resemble the Purple female, except that the underparts are lighter and the back and wings are a rich brown. Further, the paleness of the underparts is extended to the face which is much lighter than that of the Purple. One more distinguishing feature is that both sexes have a red-brown iris as compared to the usual dark brown with the majority of sunbirds.

Scarlet-tufted Malachite (*N. johnstoni* or *N. f. oenigularis*).

This sunbird is sometimes regarded as a sub-species, but has also been classified as a separate species and it is for that reason that I have included it alphabetically and not immediately following the Malachite. It is, if anything, slightly larger than the latter species and, in my opinion, with its metallic bottle-green suffused with a sheen of old-gold and its brilliant red pectoral tufts, is even more attractive. The central tail feathers are elongated to a greater extent than the Malachite and the tail and flight feathers are bluish-black. The female is about the same size as the female Malachite, but differs in general colouring by being darker. It also lacks the eye-stripe and has orange-red wing tufts. In non-breeding dress the male resembles the female except that the pectoral tufts remain red, the flight and tail feathers do not change colour, and the elongated tail feathers are retained. Its normal habitat is Eastern Equatorial Africa, but it has been found both to the north and the south of this region.

Tacazze (*N. tacazze*).

This African sunbird is about the same size as the Malachite, but has a more cobby appearance. The head and neck of the adult male in breeding dress is a metallic bronzy-green, with the mantle down to the upper tail-coverts, the wing-coverts, the chest and breast being a metallic reddish-violet. The wings, tail, and rest of the underparts are black. The central pair of tail feathers are elongated, the outer feathers being broad, giving a square appearance to the tail. The female is olive-brown above and dusky-yellow below, with an eye-stripe of the same colour. The central tail feathers are slightly elongated, but not to the extent of the male's which, in non-breeding dress resembles the female except that he retains the black flights and tail with the extended pair of central feathers. It is assumed that older males do not go into eclipse plumage since this condition has been observed in birds that have been kept in captivity for a number of years.

Yellow-bellied (*N. jugularis*).

This sunbird which is to be found in Burma in the lower regions should not be confused with the Yellow-breasted from Malaya.

Although of the same size, about 4½ inches, the similiarity ends there. The adult male has a metallic-green head, the remaining upper-parts being a dark brown. The throat is metallic-purple with a maroon band across the breast, the rest of the underparts being bright yellow. In non-breeding dress it retains part of the throat patch and can thus be distinguished from the female which, in turn, cannot be distinguished from the Purple female in colouration. The female is, however, a fraction larger than the Purple, but only by the most careful scrutiny and comparison can the two be distinguished apart.

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FURTHER NOTES ON BIRDS OF MOROCCO

By J. NEWMARK (London, England)

Following my article, " Birds of Morocco," in the Jan.–Feb. (1960) number of the AVICULTURAL MAGAZINE, which was based on a trip to North Africa in 1959, I can now report more fully on a second visit to Morocco in April, 1960. On this occasion four of us made up the party : Mr. John Yealland, Curator of Birds at the London Zoo ; Mr. Ian Schalburg, a keen bird-watcher from Sussex ; my brother, Mr. George Newmark, who came with me last year ; and myself. We stayed for a few days in Tangiers and Marrakech, then spent a week in Taroudant, 50 miles from Agadir, and returned via Marrakech and Tangiers. We identified about 100 birds altogether ; many of these, if seen in England, would send a bird-watcher into rhapsodies, although they were fairly common in Morocco.

It was our first evening in Tangiers, 7th April, that we went for a stroll into the surrounding country, and on this first excursion we saw a number of exciting birds : Orphean Warblers, *Sylvia hortensis*, Subalpine Warblers, *Sylvia cantillans*, Blue-headed Wagtails, *Motacilla flava flava*, White Wagtails, *Motacilla alba alba*, Crested Larks, *Galerida cristata*, Corn Buntings, *Emberiza calandra*, Serins, *Serinus canarius*, Siskins, *Carduelis spinus*, the white-throated form of the Black-eared Wheatear, *Oenanthe hispanica*, Woodchat Shrikes, *Lanius senator*, European Bee-eaters, *Merops apiaster*, Chaffinches, *Fringilla coelebs africana*, Pied Flycatchers, *Muscicapa striata*, and the more familiar Swallows, Swifts, House-Martins, Goldfinches, Greenfinches, Blackcaps, Whitethroats, and Winchats. A rewarding evening indeed, and over dinner that night there was only one topic of conversation—birds.

Early the next morning we saw about 150 Black Kites, *Milvus migrans*, soaring out across the bay ; in fact we saw this species every day, sometimes in large numbers, sometimes in small groups or singly. The Red Kite, *Milvus milvus*, we saw only twice, however. Later in the morning we sat on a small hillock overlooking an expanse of marshy ground, and watched, first, a pair of Montagu's Harriers, *Circus pygargus*, then a pair of Marsh Harriers, *Circus aeruginosus*, quartering the ground in their characteristic manner. We also saw a number of White Storks, *Ciconia ciconia*, Hoopoes, *Upupa epops*, and a Booted Eagle, *Hieraetus pennatus*. This last bird had us puzzled for some time, and in our eagerness to keep it in sight, we found ourselves trespassing on private property and were duly arrested by numerous guards patrolling the forest into which we had wandered. In perfect English we asked the leader to direct us out and whether he had ever seen a Booted Eagle, but as he replied in perfect Arabic we never discovered whether he was even remotely interested in birds. At the moment he was extremely interested in us, and after much discussion in a variety of languages, mainly English, some French, a smattering of Malay, and a dash of Swahili, we established friendly relations by producing our field guide and showing all the coloured illustrations of birds. They eventually came to the rightful conclusion that we were perfectly harmless and escorted us off the property.

Over 300 miles to the south, in Marrakech, one of the commonest birds we saw was the Dusky Bulbul, *Pycnonotus barbatus barbatus*. Like many rather drab-looking birds, it has a cheerful bubbling song and could be heard throughout the day in the shaded parks and olive groves. Another common bird in Marrakech was the House Bunting, *Emberiza striolata*, very similar in appearance to the Rock-Bunting. They picked up scraps of food left under the tables and on the hotel balconies, and generally gave the impression of being fearless and confident, reminding one of our own House Sparrow. Other birds frequently seen here included Lesser Kestrels, *Falco naumanni*, Cattle

Egrets, *Ardeola ibis*, Red-rumped Swallows, *Hirundo daurica*, White-rumped Swifts, *Apus affinis*, and Rufous Warblers, *Agrobates galactotes*. Less frequently we saw Spotless Starlings, *Sturnus unicolor*, Sardinian Warblers, *Sylvia melanocephala*, and Rollers, *Coracias garrulus*. About 20 miles to the south the Atlas Mountains present a magnificent panorama of snow-capped peaks stretching across the horizon, and before leaving Marrakech we visited the Ourika Valley in the foothills. Here we saw a family party of Choughs, *Pyrrhocorax pyrrhocorax barbarus*, and some Ravens, *Corvus corax tingitanus* ; also a few very attractive tits, rather like a cross between the Blue Tit and the Great Tit, but which we were unable to identify.

The journey by bus across the Atlas Mountains was mainly a succession of hairpin bends and hair-raising moments as the driver negotiated each bend in turn. For about 75 miles there is hardly a straight stretch of road and most of the grim-faced Moroccan passengers on the bus pulled their hoods well down over their faces to hide the mountain scenery and the prospect of the bus hurtling down the mountainside. We were the only Europeans on the bus and our time was divided between watching the scenery and watching for birds. From a moving vehicle, of course, it is difficult to get clear views of any bird, but we did glimpse a partridge now and then, probably the Barbary Partridge, *Alectoris barbara*. Taroudant, where we stayed for a week, lies in a wide valley south of the Atlas Mountains. Here we hired bicycles and made trips to a dried-up river bed a few miles away. This was the Sous River and we did find an area a few hundred yards long which was marshy and contained a number of waders. These marshes and pools proved to be one of our most successful bird-watching areas and we were able to watch, at close range, Black-winged Stilts, *Himantopus himantopus*, Little Egrets, *Egretta garzetta*, a Purple Heron, *Ardea purpurea*, an immature Squacco Heron, *Ardeola ralloides*, a Little Bittern, *Ixobrychus minutus*, Spotted Redshanks, *Tringa erythropus*, Greenshanks, *Tringa nebularia*, and a crake which disappeared into the reeds before we could identify it properly. On other excursions around Taroudant we saw the Rough-legged Buzzard, *Buteo lagopus*, Egyptian Vultures, *Neophron percnopterus*, a fleeting glimpse of a Cream-coloured Courser, *Cursorius cursor*, a few Moorish Magpies, *Pica pica mauritanica*—one of which was offered to us for sale and was duly brought back to the London Zoo—Black Wheatears, *Oenanthe leucura*, Nightingales, *Luscinia megarhynchos*, Great Grey Shrikes, *Lanius excubitor*, Black-bellied Sand Grouse, *Pterocles orientalis*, Pin-tailed Sand Grouse, *Pterocles alchata*, Golden Orioles, *Oriolus oriolus* (heard more often than seen), the Spanish Sparrow, *Passer hispaniolensis*, Moussier's Redstart, *Diplootícus moussieri*, a Pratincole, *Glareola pratincola*, and local races of the Song Thrush, *Turdus philomelos*, and the Blackbird, *Turdus merula mauritanicus*. The female

Blackbird is sooty black rather than dark brown ; Mr. W. H. Bierman noticed this and reported it in the *Bulletin of the British Ornithologists' Club*, Volume 77, Number 4, dated 1st April, 1957.

For the sake of completeness, I should mention the more familiar birds which we saw from time to time in various places : Herring-Gulls, Black-headed Gulls, Pied Wagtails, Yellow Wagtails, Grey Wagtails, Sand-Martins, Common Sandpipers, Robins, Redstarts, Wheatears, Herons, Kestrels, Redshanks, Spotted Flycatchers, Great Tits, Wood-Pigeons, Turtle-Doves, Linnets, a Moorhen, a Kingfisher, Stonechats, a Little Owl, and House-Sparrows.

For the bird-watcher, Morocco offers a most enjoyable and exciting holiday. Many rarities in the British Isles are to be seen there daily and it provides some very useful practice in accurate observation. The Orphean and Sardinian Warblers could easily have been mistaken for Blackcaps ; the White Wagtail for the Pied Wagtail ; the Lesser Kestrel for the Kestrel. By carefully noting slight variations in wing pattern or length of wings or shape of tail, and subsequently comparing them with the illustrations in a good Field Guide, mistakes can be avoided. Indeed, a Field Guide is as important as a pair of binoculars ; our own even played quite a useful part in securing our release after we had been arrested in the forest !

* * *

LONDON ZOO NOTES

By J. J. YEALLAND

As briefly explained in the last number of the MAGAZINE, the Tropical House has been much improved by the removal of the corridor and all partitions and made into what is sometimes known as a conservatory aviary, or walk-through aviary. Though not on the scale of the conservatory aviary in West Park, Pittsburgh, described by Mr. Roland W. Hawkins (*Avicultural Magazine*, 1954), this house in its new form is appreciated by visitors and is, so far, successful in the avicultural sense. The actual flying space is some 47 feet by 28 feet and at a height of about 11 feet, a small meshed nylon net has been fixed so as to prevent the escape of birds through the roof windows by means of which the house is ventilated. The paved walk through the middle has been widened and on one side, running the whole length of the house, is an area of water varying from 3 to 4 feet in width and 6 inches deep, though filled to within an inch of the surface with fine shingle. Beyond the water is an area of peat moss in which a variety of tropical plants are growing and the purpose of the water " barrier " is to confine visitors to the paved walk and thus provide the birds with a secluded place. On the other side, a raised concrete platform has

been retained with the front wall raised so as to hold sufficient peat for the growing of plants. This area is no more than 4 feet wide, running the length of the house, but it, too, is frequented by the birds even when people are moving about the walk. The present occupants are humming birds, sugar birds, and sunbirds, numbering twenty-seven specimens. A darkened porch at the entrance and exit prevents the escape of birds. In addition to being a great improvement to existing accommodation, this conversion will provide information of use in the planning of a new and much larger Tropical House.

Recent arrivals of especial interest include five forms new to the collection. These are a Chestnut-winged Guan (*Ortalis erythroptera*) presented by Mr. Tom Spence, a Quaker Parrakeet (*Myiopsitta monacha cotorra*), that was collected in Paraguay by David Attenborough, two Sclater's Motmots (*Momotus momota microstephanus*), two Red-headed Tits (*Aegithaliscus concinnus rubricapillus*), presented by Messrs. G. H. and J. R. Newmark, who also gave two Himalayan Yellow-backed Sunbirds ; and an Isthmian Sugar Bird or Honey Creeper (*Cyanerpes caeruleus isthmicus*), given together with a Mrs. Wilson's Tanager by Mr. R. W. Drury. A Red-footed Gannet (*Sula sula rubripes*), that had been kept as a pet in the Cocos Islands, a Black-footed Penguin found covered in oil near Cape Town, and three young Greater Spotted Woodpeckers rescued from a fallen tree have also been received.

Three eggs laid by the Kea have proved to be infertile. Two Silver Gulls, two Ceylon Jungle fowl, two Eagle-Owls (*Bubo bubo*), and three Snowy Owls are the most noteworthy of the birds recently bred in the Gardens. The Snowy Owl eggs were given just before hatching to foster-parents—one to a Woodford's Owl and two to Abyssinian Eagle-Owls whose own eggs were not fertile and the chicks are thriving. Their rightful mother has a bad record, having reared only one chick from a number of clutches laid during the course of several years. In spite of having incubated the eggs for some thirty days, she has laid again.

The three Spotted Eagle-Owl chicks previously reported are now almost fully grown. A Green-winged King Parrakeet that was, I believe, brought by Mr. Shaw Mayer in 1939, hatched a single egg, but the chick did not survive.

* * *

NEWS AND VIEWS

The Editor of the AVICULTURAL MAGAZINE spent two weeks in California in May and visited the San Diego Zoo and the collections of Mr. F. H. Rudkin, Mr. Wm. J. Sheffler, and Mr. Ray Thomas.

* * *

Mr. Jean Delacour has given up his house in Los Angeles on his retirement from the Directorship of the Los Angeles County Museum and dispersed his collection of birds, most of which have been sent to Clères. In future Mr. Delacour intends to spend about six months of the year in Europe.

* * *

Miss Phyllis Barclay-Smith attended the Twelfth Conference of the International Council for Bird Preservation held in Tokyo, 24th–29th May, 1960. Its principal object was to discuss the problem of preventing the decrease of birds, more especially in Asian regions. It is interesting to note that at the first Conference, which met in London in 1922, only three nations participated, whereas now there are fifty member-nations.

* * *

James G. Suthard, Long Beach, California, has successfully bred the Ceylon Spurfowl (*Galloperdix bicalcarata*). Two young ones were hatched on 14th April, 1959, and these eventually developed into two males. Two further eggs were laid late in November, but proved to be infertile. Suthard gives a full and informative breeding account in *Game Bird Breeders, Pheasant Fanciers, and Aviculturists' Gazette*, April, 1960.

* * *

Dr. Edmond A. Schlesselman, Fresno, California, reports: "This appears to be a 'good bird year'. So far I have five Bourkes flying, plus three nests of eggs; Moustache, two half-grown young in one nest and three in another; Indian Ring-necked, one lutino and one split in one nest, and three just hatched in another; Eastern Rosella, six young in nest; Plum-headed, two half-grown young in one nest and four in another; Red-rumped, four young; Pennant's and Yellow Rosella on eggs."

* * *

The International Wild Waterfowl Association was founded for the preservation of wild waterfowl. The primary objective is the establishment of several propagating areas where a programme of the captive breeding of some of the rarer species threatened with extinction may

be carried out—thus through aviculture ensuring their survival. The first of the proposed preserves is now in process of being established in Salt Lake City—the State of Utah has already pledged approximately twenty-five acres of marshland. This first centre has been designated the "Jean Delacour International Wild Waterfowl Propagation Centre".

* * *

R. K. Wright, Adelaide, South Australia, favours the colony system for breeding Queen Alexandra's Parrakeets and has had considerable success—1959, twenty-two young reared.

Early in September, 1958, an unattached female Rock Pebbler was seen to mate with an odd Queen Alexandra's, and although a male of her own species was obtained for her she showed no interest, but continued to consort with the Queen Alexandra's. The first of four eggs was laid on 21st September; two proved infertile but the remaining two produced excellent young ones. These are flourishing and are apparently a true pair.

* * *

The Jubilee (1909–1959) *Annual Report of the Royal Zoological Society of Scotland* gives the 1959 breeding results with the penguins in the Edinburgh Zoo. "The breeding of the Park's old colony during the year was only partially successful, deaths among chicks hatched being largely due to the prolonged hot summer. Of seven king chicks hatched from eleven eggs only two were fully reared; from six maccaroni eggs laid only two hatched and both chicks succumbed; of the nine gentoo chicks hatched from ten eggs (a gentoo record for the Park) only four survived. As usual the young birds were sold or exchanged, thus preventing inbreeding in the colony while supplying other Societies with acclimatized birds reared to hand-feeding."

The Society's free-flying colony of Night Herons continues to thrive and now numbers about thirty-six birds, descendants of the original three pairs that escaped from an aviary.

A. A. P.

* * *

REVIEWS

LES OISEAUX DU MONDE. ATLAS DES OISEAUX. Tomes 1 and 2. By L. DELAPCHIER, with illustrations by the author. Editions N. Boubée and Cie., Paris. Tome 1, 1959. Tome 2, 1960. Price, 36 New Francs each.

This is a new edition of the *Petits Atlas des Oiseaux* entirely rewritten and considerably enlarged. The volumes are of convenient size, measuring $7\frac{1}{4} \times 5\frac{1}{4}$ inches, and though the text is in French, are a useful guide to those with only an elementary knowledge of this language.

Volume 1 contains short chapters on fossil birds, morphology, internal anatomy, and biology of birds, which give the reader a good general idea of these subjects. These are followed by an account of "The Bird, Nature and Man" which starts with a quotation from Michelet: *Sans l'oiseau l'homme ne saurait subsister sur la terre* (Without birds man could not exist on the earth). The author quotes many instances of the utility of birds and deplores their progressive decrease which he ascribes as much to thoughtless destruction as to the damage resulting from "so-called civilization".

The author then makes a comprehensive survey of the birds of the world, first giving a short description of the Order, then the Family, following with accounts of various species; this is continued and completed in Volume 2. There are six plates in black and white and thirty coloured plates depicting 199 species of birds and fifty-seven eggs in Volume 1. In Volume 2 there are ten plates in black and white and twenty-four coloured plates depicting 202 species of birds and forty-seven of chicks. The author is also the illustrator of his book and the coloured plates are of a high standard and, in most cases, well reproduced. The black and white illustrations of nests are particularly instructive.

In his introduction Professor Berlioz writes: ". . . I do not doubt that in this 'Atlas' which is a comprehensive work and yet produced in greatly condensed form will do much to arouse further interest in ornithology among naturalists. What more reliable or clearer guide could they find?"

Professor Berlioz concludes his introduction by expressing his great regret on the recent death of the author before seeing publication of his latest work. As Professor Berlioz says: "Having devoted the last period of his life entirely to ornithology and his art, his memory will remain indissolubly associated with this posthumous production the scientific integrity of which reflects so well what has always been his own personality."

P. B-S.

* * *

NOTES

Artificial Incubation and Successful Rearing of American Condor in Frankfurt Zoo

A notice in the January–March, 1960, number of *International Zoo News* stated that an American Condor had been artificially incubated in the Frankfurt (Main) Zoo. At the request of the Hon. Secretary of the Avicultural Society the Director of the Frankfurt Zoo, Dr. Grzimek, has kindly forwarded the following notes regarding this achievement :—

An egg of an American Condor which had not been brooded by the parents was artificially incubated in the incubator of the Zoological Gardens, Frankfurt (Main) and hatched out on 25th May, 1959. The artificial incubation is not difficult and could be done in any poultry incubator. At the time of hatching the weight of the young Condor was 250 gr. As in the wild the Condor feeds its young on predigested food, this makes the rearing very difficult. An investigation of the fluid content of the crop of an adult Condor indicated to some extent the composition of the food. The young bird was fed on meat predigested by means of stomach fermentations in a thermostat and to this lime salts and various vitamins were added. The rearing was successful and within fourteen days the young Condor had doubled its weight. On 5th December, 1959, when about six months old, the bird had attained a weight of 22 lb. 200 gr. During this period also it began to attempt to fly. The bird is extraordinarily tame and confiding and can still be allowed its freedom without any difficulty. It is attached to its home and so far has made no attempt to fly away, remaining most of the time in the Childrens' Zoo of the Zoological Gardens, only flying on to the roofs in the vicinity in the evening or when there are not many people about. The extreme friendliness of this large bird which now has a wing-span of 3 m. is astonishing. It will sit for hours on the laps of various subscribers who visit it daily, and allow itself to be gently scratched. It can at once distinguish its foster-parents, Dr. and Mrs. Faust, among a large number of visitors and immediately flies to them, often over a considerable distance.

* * *

BRITISH AVICULTURISTS' CLUB

Dinners and Meetings during the 1960–61 session have been arranged for the following dates :—

Monday, 26th September, 1960
Wednesday, 9th November, 1960
Wednesday, 11th January, 1961
Wednesday, 8th March, 1961

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Arthur A. Prestwich,
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3½ lb.	11/9	3½ lb.	13/6	1 lb.	4/–	3½ lb.	21/–	3½ lb.	15/–
7 lb.	22/9	7 lb.	26/6	3½ lb.	13/6	7 lb.	38/8	7 lb.	29/9
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NEW MEMBERS

The thirty-six Candidates for Election in the May–June, 1960, number of the Avicultural Magazine were duly elected members of the Society.

CHANGES OF ADDRESS

Professor Val Clear, to Apartado 426, Rio Piedras, Puerto Rico, U.S.A.

Jean Delacour, to c/o American Museum of Natural History, Central Park West at 79th St., New York 24, N.Y., U.S.A.

W. C. Hall, to Holebeck Farm, Woodland, Broughton-in-Furness, Lancs.

Gerald T. Iles, to 46 Windsor Avenue, Westmount, Montreal 6, Canada.

Franz Kraus, to Neuried b. München, Germany.

George D. Lake, to Audreys, Burghfield Common, Nr. Reading, Berks.

A. J. Newcombe, to 15 Hillary Road, Basingstoke, Hants.

Dr. Vittorio Orlando, to Via G. Bonomo 4, Palermo, Italy.

J. Ramsden, to 3 Hall Close, Kibworth, Leicester.

C. T. Ridley, to 3812 Hedley Avenue, Charleswood, Man., Canada.

Dr. K. G. Rothwell, to 49 Lutterworth Road, Leicester.

C. Sharp, to Federation of Malaya Customs Duties Collection Station, Private Bag, Singapore.

W. A. Wingate, to 7 Market Street, Winchester, Hants.

CANDIDATES FOR ELECTION

D. S. Alexander, "Braemar," 8 Maxwell Road, Bangor, Co. Down, N. Ireland. Proposed by Sir Crawford McCullagh, Bart.

Derek M. Arnold, 63 Green Lane, Wilnecote, Nr. Tamworth, Staffs. Proposed by Miss K. Bonner.

Dr. I. G. A. Beckett, 14 Egremont Street, Ely, Cambs. Proposed by W. H. Pavn.

John Bergey, 22 Wallace Grove, Brighton Beach, Victoria, Australia. Proposed by A. A. Prestwich.

B. C. R. Bertram, Linton House, Linton, Cambs. Proposed by J. J. Yealland.

J. Boyko, 87 Wimbledon Road, Sherwood, Nottingham. Proposed by A. A. Prestwich.

Perry Candiandes, 1705 San Nicholas Street, Ventura, Calif., U.S.A. Proposed by Otis Wade.

Mrs. Edna M. Cowling, 7 Weddell Road, North Geelong, Victoria, Australia. Proposed by Miss K. Bonner.

J. M. Cunningham, Fernhill, Belfast 13, N. Ireland. Proposed by Sir Crawford McCullagh, Bart.

P. C. R. Davis, "Claremont," 38 Station Road, Shirling, Southampton. Proposed by A. A. Prestwich.

E. Dutton, 157 Horbury Road, Wakefield, Yorkshire. Proposed by J. E. Hargreaves.

Captain Rodrigo L. de Faria, Paço de Sobralinho, Alhandra, Portugal. Proposed by A. A. Prestwich.

A. L. Gilbert, 34 Yass Street, Young, N.S.W., Australia. Proposed by A. A. Prestwich.

Michael Graeme, 77 Tecoma Avenue, Luanshya, Northern Rhodesia. Proposed by Miss K. Bonner.

J. R. Hall, The Priory Waterfowl Farm, Ixworth, Bury St. Edmund's, Suffolk. Proposed by W. H. Pavn.

C. J. O. Harrison, 158 Mantilla Road, Tooting, London, S.W. 17. Proposed by Derek Goodwin.

W. Robert Hawkes, "East Moorara", Frances, South Australia. Proposed by A. A. Prestwich.

Walter E. Hill, 1102 Johnson Avenue, Stirling North, South Australia. Proposed by A. A. Prestwich.

Fr. Huybrechts, Stw. op Leest 66, Houtbeek, Belgium. Proposed by Miss K. Bonner.

Stanley B. Loveless, "Minley," 22 The Glade, Stoneleigh, Epsom, Surrey. Proposed by Miss K. Bonner.

Frederick A. Mackell, 23 Sutherland Crescent, Darling Point, N.S.W., Australia. Proposed by A. A. Prestwich.

G. van Maldsberger, 2013 Belknap Place, San Antonio 12, Texas, U.S.A. Proposed by Miss K. Bonner.

Lady Manton, Plumpton Place, Nr. Lewes, Sussex. Proposed by J. J. Yealland.

Mrs. Velma McDaniels, 2427 West 251st Street, Lomita, Calif., U.S.A. Proposed by A. A. Prestwich.

John E. McDonald, Box 135, Winkie, South Australia. Proposed by Miss K. Bonner.

Raymond W. McDougall, 9 Glass Street, East Kew E. 5, Victoria, Australia. Proposed by Miss K. Bonner.

A. R. Meakin, 56 Tresster Road, Hampton, Victoria, Australia. Proposed by A. A. Prestwich.

Peter E. Miller, Abbotshay Farm, Ayot St. Lawrence, Welwyn, Herts. Proposed by P. S. Bates.

Mrs. PETER E. MILLER, Abbotshay Farm, Ayot St. Lawrence, Welwyn, Herts. Proposed by P. S. Bates.

R. MCILROY, 1 Dundela Gardens, North Road, Belfast 4, N. Ireland. Proposed by Sir Crawford McCullagh, Bart.

Mrs. BEATRICE J. O'TOOLE, Box 267, Diablo Heights, Canal Zone, Republic of Panama. Proposed by Mrs. M. Marciacq.

R. W. L. PATON, "Hollycroft", 108 Kenilworth Road, Coventry. Proposed by B. Dittrich.

R. RUSSELL, 1 Kennford Road, Gillmoss, Liverpool 11. Proposed by Miss K. Bonner.

Dr. S. SHAPIRO, 513 Harley Chambers, Jeppe Street, Johannesburg, South Africa. Proposed by A. A. Prestwich.

WILLIAM WADLER, Odengatan 86 II, Stockholm VA, Sweden. Proposed by Miss P. Barclay-Smith.

LAO WEI-CHING, 25 Carnarvon Road, 3rd Floor, Tsimshatsui, Kowloon, Hong Kong. Proposed by W. B. Frostick.

Dr. DOLPH T. WELLS, M.D., 3201 South Gevers, San Antonio 12, Texas, U.S.A. Proposed by Miss K. Bonner.

Mrs. R. M. WHITE, Hannaford House, Landkey, Barnstaple, N. Devon. Proposed by A. A. Prestwich.

HENRY WINDLE, 28 Gloucester Street, Prospect, South Australia. Proposed by Miss K. Bonner.

GERRIT D. VAN ZYL, Married Quarter 41, Llewellin Barracks, Bulawayo, S. Rhodesia. Proposed by A. A. Prestwich.

READMITTED

W. P. BLAND, F.Z.S., 15 Mumford's Lane, Meols, Hoylake, Wirral, Cheshire.

JOHN T. HIGGINBOTHAM, Jr., 4912 Milam Street, Dallas 6, Texas, U.S.A.

ABDE AMIRUDIN SHALEBHOY TYEBJEE, "Shale Building," 28–32 Bank Street, Fort, Bombay 1, India.

NEW MEMBERS

The thirty-six Candidates for Election in the May–June, 1960, number of the AVICULTURAL MAGAZINE were duly elected members of the Society.

CHANGES OF ADDRESS

Professor VAL CLEAR, to Apartado 426, Rio Piedras, Puerto Rico, U.S.A.

JEAN DELACOUR, to c/o American Museum of Natural History, Central Park West at 79th St., New York 24, N.Y., U.S.A.

W. C. HALL, to Holebeck Farm, Woodland, Broughton-in-Furness, Lancs.

GERALD T. ILES, to 46 Windsor Avenue, Westmount, Montreal 6, Canada.

FRANZ KRAUS, to Neuried b. München, Germany.

GEORGE D. LAKE, to Audreys, Burghfield Common, Nr. Reading, Berks.

A. J. NEWCOMBE, to 15 Hillary Road, Basingstoke, Hants.

Dr. VITTORIO ORLANDO, to Via G. Bonomo 4, Palermo, Italy.

J. RAMSDEN, to 3 Hall Close, Kibworth, Leicester.

C. T. RIDLEY, to 3812 Hedley Avenue, Charleswood, Man., Canada.

Dr. K. G. ROTHWELL, to 49 Lutterworth Road, Leicester.

C. SHARP, to Federation of Malaya Customs Duties Collection Station, Private Bag, Singapore.

W. A. WINGATE, to 7 Market Street, Winchester, Hants.

DONATIONS

(Coloured Plate Fund)

	£	s.	d.
Lt.-Col. H. W. Clayden	1	4	0
W. L. Eaves	1	2	0
Mrs. J. W. Flintoft		15	0
Mrs. H. L. Schumacher		15	0
J. H. Jeffs		10	0
Captain C. Scott-Hopkins		10	0
H. E. Temlett		10	0

ACTIVE DIRECTORSHIPS are being offered in a long established Bird Food Manufacturing and Livestock business, applicants with practical experience in tropical bird-keeping preferred. State capital available for investment, experience, etc., in confidence to J. V. Couzens, Chartered Accountants, 3 Victoria Crescent, Bradford Road Junction, Portsmouth.

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is THREEPENCE PER WORD. *Payment must accompany the advertisement, which must be sent on or before the 15th of the month to* A. A. PRESTWICH, 61 CHASE ROAD, OAKWOOD, N. 14. *All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.*

Wanted for filling children's aviaries. A nominal price is offered for surplus, slightly defective, or birds unsuitable for breeding purposes. Offers to :—Box S. B., Avicultural Society, 61 Chase Road, Oakwood, London, N. 14.

Thoroughly acclimatized hen Green-winged Dove (*Chalcophaps indica*), offered in exchange for similar cock ; or would sell :—Dr. S. B. KENDALL, Weir Cottage, Bridge Road, Chertsey, Surrey.

Wanted. Hen Pileated, Elegants, Blue-wings ; Cayley's *Australian Parrots*. Birds could be collected in September :—Dr. H. D. GROEN, Rijksstraatweg 252, Haren (Groningen), Holland.

I wish to exchange a few 1960 aviary-bred Turquoisines for 1960 strong flying aviary-bred Splendids : also, an exchange of bloodline for 1960 aviary-bred Splendids. It would be most satisfactory if I could personally deliver and collect the birds to be exchanged :—H. G. PALMER, " The Shrubbery," 115 Roman Road, Birstall, Leicestershire.

For Indian birds buy direct from :—K. L. ACOOLI AND SONS, Post Box 12008, Calcutta 2, India.

Wanted urgently. *Stroud's Digest on the Diseases of Birds*. Please write or telephone Mrs. JOAN ROBINSON, F.Z.S., Flat One, 63 Nightingale Lane, Balham, London, S.W. 12. Telephone : Battersea 7856.

For sale. Purple Sunbirds, £6 each ; Shamas, £5 10s. each ; Magpie-Robins, £4 each ; Blue-winged Sivas, £5 10s. pair ; Zosterops, £2 10s. pair ; Pekin Robins, £3 pair :—A. E. CLAYDEN, 17 New Street, Selby, Yorks.

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